

LISTING OF THE CLAIMS

CLAIMS

What is claimed is:

1. (Currently amended) An extensible-markup-language Path Language (XPath) evaluating method ~~for comprising~~ evaluating the XPath relevant to an extensible-markup-language (XML) document by use of a computer, the step of evaluating XPath ~~evaluating method~~ comprising:

a first step of serially inputting XML event strings constituting an XML document to be processed;

a second step of serially evaluating the XPath respectively relevant to the inputted XML events while subjecting the XML document to streaming processing and retaining information concerning a result of partial evaluation of the XPath in given storing means when the XPath is partially established ~~with~~ with respect to a given XML event; and

a third step of repeating the partial evaluation of the XPath along with the input of the XML event strings while considering the result of the partial evaluation retained in the storing means and evaluating that the XPath is established with respect to the XML document when the last part of the XPath is established.

2. (Original) The XPath evaluating method according to claim 1,

wherein the second step includes the steps of:

generating an automaton for expressing the XPath to be evaluated; and

evaluating the XPath partially by allowing transition of a state of the automaton based on inputted respective XML events and retaining a result of the partial evaluation as the state of the automaton.

3. (Original) The XPath evaluating method according to claim 1,

wherein the second step includes the steps of:

generating a first stack which expresses the XPath to be evaluated with a string of stack elements; and

1 generating a second stack for analyzing a nested structure of the XML document to be
2 processed based on respective inputted XML events and then evaluating the XPath partially by
3 comparing the first stack with the second stack.

4 4. (Original) The XPath evaluating method according to claim 1,
5 wherein the second step includes the steps of:
6 serially constructing a document tree indicating a document structure of the XML
7 document to be processed based on input of respective XML events; and
8 evaluating the XPath along with construction of the document tree by use of the document
9 tree including a part which has been constructed.

10 5. (Currently amended) An XPath evaluating apparatus comprising:
11 an evaluation executing unit being embodied in a tangible computer readable medium, and
12 employed for inputting XML event strings constituting an XML document and serially evaluating
13 the XPath with respect to each of XML events while subjecting the XML document to streaming
14 processing, and while retaining information concerning a result of partial evaluation of the XPath
15 when the XPath is partially established with respect to a given XML event, and evaluating that the
16 XPath is established with respect to the XML document when the last step of the XPath is
17 established; and
18 an XML event transferring unit being embodied in a tangible computer readable medium,
19 and employed for inputting the XML event strings constituting the XML document to be
20 processed and serially transferring the XML event strings to the evaluation executing unit.

21 6. (Currently amended) The XPath evaluating apparatus according to claim 5, further comprising:
22 an automaton generating unit being embodied in a tangible computer readable medium,
23 and employed for generating an automaton which expresses the XPath to be evaluated,
24 wherein the evaluation executing unit performs partial evaluation of the XPath by allowing
25 a state of the automaton generated by the automaton generating unit to perform transition based
26 on the XML events transferred from the XML event transferring unit, and retains a result of the
27 partial evaluation as the state of the automaton.

1 7. (Currently amended) The XPath evaluating apparatus according to claim 5, further comprising:
2 a stack generating unit being embodied in a tangible computer readable medium, and
3 employed for generating a first stack which expresses the XPath to be evaluated with a string of
4 stack elements,
5 wherein the evaluation executing unit performs partial evaluation of the XPath by
6 generating a second stack for analyzing a nested structure of the XML document subject to
7 processing based on the XML events transferred from the XML event transferring unit and then
8 comparing the first stack generated by the stack generating unit with the second stack.

9 8. (Currently amended) An XPath evaluating apparatus comprising:
10 a document tree constructing unit being embodied in a tangible computer readable
11 medium, and employed for inputting XML event strings which constitute an XML document and
12 serially constructing a document tree indicating a document structure of the XML document
13 based on inputted XML events along with the input of the respective XML events while
14 subjecting the XML document to streaming processing;

15 an XML event transferring unit being embodied in a tangible computer readable medium,
16 and employed for inputting the XML event strings which constitute the XML document to be
17 processed and serially transferring the XML event strings to the document tree constructing unit;
18 and

19 an evaluation executing unit being embodied in a tangible computer readable medium, and
20 employed for evaluating the XPath along with construction of the document tree by the document
21 tree constructing unit, using the document tree with a part which has been constructed.

22 9. (Original) The XPath evaluating apparatus according to claim 8,
23 wherein the evaluation executing unit retains information concerning a result of partial
24 evaluation of the XPath when the XPath is partially established upon the evaluation of the XPath
25 using the document tree.

26 10. (Currently amended) An information processing apparatus comprising:

1 an XML parser for analyzing an XML document to be processed and thereby generating
2 XML event strings;

3 an XPath evaluating unit being embodied in a tangible computer readable medium, and
4 employed for serially inputting the XML event strings generated by the XML parser and
5 evaluating the XPath with respect to each of inputted XML events by streaming processing while
6 subjecting the XML document to streaming processing; and

7 an application executing unit being embodied in a tangible computer readable medium, and
8 employed for inputting the XML events generated by the XML parser and performing processing
9 with respect to the XML document configured by the XML events in response to an evaluation
10 result of the XPath by the XPath evaluating unit,

11 wherein the XPath evaluating unit serially evaluates the XPath with respect to each of the
12 XML events, retains information concerning a result of partial evaluation of the XPath when the
13 XPath is partially established with respect to a given XML event, and judges that the XPath is
14 established with respect to the XML document when the last step of the XPath is established.

15 11. (Original) The information processing apparatus according to claim 10,

16 wherein the XPath evaluating unit generates an automaton for expressing the XPath to be
17 evaluated,

18 performs partial evaluation of the XPath by allowing transition of a state of the automaton
19 based on the XML events generated by the XML parser, and retains a result of the partial
20 evaluation as the state of the automaton.

21 12. (Original) The information processing apparatus according to claim 10,

22 wherein the XPath evaluating unit generates a first stack which expresses the XPath to be
23 evaluated with a string of stack elements, generates a second stack for analyzing a nested
24 structure of the XML document to be processed based on the XML events generated by the XML
25 parser, and performs partial evaluation of the XPath by then comparing the first stack with the
26 second stack.

27 13. (Original) The information processing apparatus according to claim 10,

1 wherein the XPath evaluating unit serially constructs a document tree indicating a
2 document structure of the XML document to be processed based on inputted XML events along
3 with the input of the respective XML events generated by the XML parser, and evaluates the
4 XPath by use of the document tree with a part which has been constructed.

5 14. (Currently amended) A program embodied in a tangible computer readable medium, and
6 employed for controlling a computer to evaluate the XPath with respect to an XML document,
7 the program causing the computer to execute the procedures for carrying out the steps of claim 1.

8 15. (Original) An article of manufacture comprising a computer usable medium having computer
9 readable program code means embodied therein for causing evaluation of the XPath relevant to an
10 extensible-markup-language (XML) document, the computer readable program code means in
11 said article of manufacture comprising computer readable program code means for causing a
12 computer to effect the steps of claim 1.

13 16. (Original) A program storage device readable by machine, tangibly embodying a program of
14 instructions executable by the machine to perform method steps for evaluating the XPath relevant
15 to an extensible-markup-language (XML) document, said method steps comprising the steps of
16 claim 1.

17 17. (Original) A computer-readable recording medium comprising the program according to
18 claim 14.

19 18. (Currently amended) A computer program product comprising a computer usable medium
20 having computer readable program code means embodied therein for causing XPath evaluation,
21 the computer readable program code means in said computer program product comprising
22 computer readable program code means for causing a computer to effect the ~~functions~~ Xpath
23 evaluating apparatus of claim 5.

1 19. (Currently amended) A computer program product comprising a computer usable medium
2 having computer readable program code means embodied therein for causing XPath evaluation,
3 the computer readable program code means in said computer program product comprising
4 computer readable program code means for causing a computer to effect the ~~functions~~ Xpath
5 evaluating apparatus of claim 8.

6 20. (Currently amended) A computer program product comprising a computer usable medium
7 having computer readable program code means embodied therein for causing information
8 processing, the computer readable program code means in said computer program product
9 comprising computer readable program code means for causing a computer to effect the ~~functions~~
10 information processing apparatus of claim 10.